Pushing the Envelope			
2006 Mathematics			
Grade Level and Grade Span Expectations			
Rhode Island Mathematics			
Grade 5			
Activity/Lesson	**State**	**Standards**	
Physics and Math (pgs. 43-63)	RI	MA.5.M(F&A)-5-2	Demonstrates conceptual understanding of linear relationships (y = kx) as a constant rate of change by identifying, describing, or comparing situations that represent constant rates of change (e.g., tell a story given a line graph about a trip).
Physics and Math (pgs. 43-63)	RI	MA.5.M(F&A)-5-3	Demonstrates conceptual understanding of algebraic expressions by using letters to represent unknown quantities to write linear algebraic expressions involving any two of the four operations; or by evaluating linear algebraic expressions using whole numbers.
Pushing the Envelope			
2006 Mathematics			
Grade Level and Grade Span Expectations			
Rhode Island Mathematics			
Grade 6			
Activity/Lesson	**State**	**Standards**	
Physics and Math (pgs. 43-63)	RI	MA.6.M(N&O)-6-1	Demonstrates conceptual understanding of rational numbers with respect to ratios (comparison of two whole numbers by division a/b, a : b, and a ÷ b , where b is not equal to 0); and rates (e.g., a out of b, 25%) using models, explanations, or other representations.
Physics and Math (pgs. 43-63)	RI	MA.6.M(F&A)-6-1	Identifies and extends to specific cases a variety of patterns (linear and nonlinear) represented in models, tables, sequences, graphs, or in problem situations; or writes a rule in words or symbols for finding specific cases of a linear relationship; or writes a rule in words or symbols for finding specific cases of a nonlinear relationship; and writes an expression or equation using words or symbols to express the generalization of a linear relationship (e.g., twice the term number plus 1 or 2n + 1).
Physics and Math (pgs. 43-63)	RI	MA.6.M(F&A)-6-2	Demonstrates conceptual understanding of linear relationships (y = kx; y = mx + b) as a constant rate of change by constructing or interpreting graphs of real occurrences and describing the slope of linear relationships (faster, slower, greater, or smaller) in a variety of problem situations; and describes how change in the value of one variable relates to change in the value of a second variable in problem situations with constant rates of change.

Physics and Math (pgs. 43-63)	RI	MA.6.M(F&A)-6-3	Demonstrates conceptual understanding of algebraic expressions by using letters to represent unknown quantities to write linear algebraic expressions involving any of the four operations and consistent with order of operations expected at this grade level; or by evaluating linear algebraic expressions (including those with more than one variable); or by evaluating an expression within an equation (e.g., determine the value of y when x = 4 given y = 3x - 2).
Pushing the Envelope			
2006 Mathematics			
Grade Level and Grade Span Expectations			
Rhode Island Mathematics			
Grades 6-8			
Activity/Lesson	**State**	**Standards**	
Physics and Math (pgs. 43-63)	RI	MA.6-8.M(CCR)-8-2.3	Convert between representations (e.g., a table of values, an equation, and a graph may all be representations of the same function).
Pushing the Envelope			
2006 Mathematics			
Grade Level and Grade Span Expectations			
Rhode Island Mathematics			
Grade 7			
Activity/Lesson	**State**	**Standards**	
Physics and Math (pgs. 43-63)	RI	MA.7.M(F&A)-7-1	Identifies and extends to specific cases a variety of patterns (linear and nonlinear) represented in models, tables, sequences, graphs, or in problem situations; and generalizes a linear relationship using words and symbols; generalizes a linear relationship to find a specific case; or writes an expression or equation using words or symbols to express the generalization of a nonlinear relationship.
Physics and Math (pgs. 43-63)	RI	MA.7.M(F&A)-7-2	Demonstrates conceptual understanding of linear relationships (y = kx; y = mx + b) as a constant rate of change by solving problems involving the relationship between slope and rate of change, by describing the meaning of slope in concrete situations, or informally determining the slope of a line from a table or graph; and distinguishes between constant and varying rates of change in concrete situations represented in tables or graphs; or describes how change in the value of one variable relates to change in the value of a second variable in problem situations with constant rates of change.

Physics and Math (pgs. 43-63)	RI	MA.7.M(F&A)-7-3	Demonstrates conceptual understanding of algebraic expressions by using letters to represent unknown quantities to write algebraic expressions (including those with whole number exponents or more than one variable); or by evaluating algebraic expressions (including those with whole number exponents or more than one variable); or by evaluating an expression within an equation (e.g., determine the value of y when x = 4 given $y = 5x^3 - 2$).
Pushing the Envelope			
2006 Mathematics			
Grade Level and Grade Span Expectations			
Rhode Island Mathematics			
Grade 8			
Activity/Lesson	**State**	**Standards**	
Physics and Math (pgs. 43-63)	RI	MA.8.M(F&A)-8-2	Demonstrates conceptual understanding of linear relationships (y = kx; y = mx + b) as a constant rate of change by solving problems involving the relationship between slope and rate of change; informally and formally determining slopes and intercepts represented in graphs, tables, or problem situations; or describing the meaning of slope and intercept in context; and distinguishes between linear relationships (constant rates of change) and nonlinear relationships (varying rates of change) represented in tables, graphs, equations, or problem situations; or describes how change in the value of one variable relates to change in the value of a second variable in problem situations with constant and varying rates of change.
Pushing the Envelope			
2006 Mathematics			
Grade Level and Grade Span Expectations			
Rhode Island Mathematics			
Grades 9-10			
Activity/Lesson	**State**	**Standards**	
Physics and Math (pgs. 43-63)	RI	MA.9-10.M(N&O)–10–4	Accurately solves problems that involve but are not limited to proportional relationships, percents, ratios, and rates. (The problems might be drawn from contexts outside of and within mathematics including those that cut across content strands or disciplines.)

Physics and Math (pgs. 43-63)	RI	MA.9-10.M(F&A)–10–2	Demonstrates conceptual understanding of linear and nonlinear functions and relations (including characteristics of classes of functions) through an analysis of constant, variable, or average rates of change, intercepts, domain, range, maximum and minimum values, increasing and decreasing intervals and rates of change (e.g., the height is increasing at a decreasing rate); describes how change in the value of one variable relates to change in the value of a second variable; or works between and among different representations of functions and relations (e.g., graphs, tables, equations, function notation).
Pushing the Envelope			
2006 Mathematics			
Grade Level and Grade Span Expectations			
Rhode Island Mathematics			
Grades 11-12			
Activity/Lesson	**State**	**Standards**	
Physics and Math (pgs. 43-63)	RI	MA.11-12.M(F&A)–12-2	Demonstrates conceptual understanding of linear and nonlinear functions and relations by representing and analyzing functions in several ways; recognizing properties of functions and characteristics properties of families of functions; applying knowledge of functions to interpret, model, and solve problems; analyzing characteristics of classes of functions (polynomial, rational, and exponential) to include domain, range, intercepts, increasing and decreasing intervals and rates of change; representing functions numerically, algebraically, graphically, and verbally (i.e. in written words), recognizing properties of a function from these representations, and transfers information from one representation to another; graphing polynomial, rational and exponential functions, including vertical and horizontal shifts, stretches, and compressions as well as reflections across vertical and horizontal axes; applying knowledge of functions to interpret and understand situations, design mathematical models, and solve problems in mathematics as well as in natural and social sciences.